REMARKS

This paper is responsive to the Office Action mailed on February 12, 2007, in the above-captioned application. In response to the Office Action, which has been carefully reviewed, Claims 1, 4, 7, 11, 16-19, 21-26, and 48-50 have been amended, and claims 20 and 62 have been canceled without prejudice or disclaimer. No new matter has been added. In view of the amendments and the following remarks, Applicants respectfully request reconsideration and allowance of the pending claims.

Rejection under 35 U.S.C. § 112

Claims 1-47 and 50-68 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Particularly, the Examiner asserts that claims 1 and 50 fail to recite a step related to predicting a level of consumption of healthcare resources. Applicants have amended claims 1 and 50 to recite "using the utilization score to predict healthcare resource consumption by at least one plan member." Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner also rejected claim 53 because it is unclear to the Examiner how the target period can be the same as the base period. Applicants respectfully refer the Examiner to page 4, lines 5-18, particularly lines 12-18, which discloses an embodiment of the present invention wherein the target period is the same as the base period and describes the functionality of this embodiment. Applicants therefore respectfully request reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. § 103

Claims 1-5, 16-19, 21-24, 27-32, 36-56, and 62-67 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lash (US 2001/0020229 A1). Applicants respectfully traverse the rejection for at least the following reasons.

Each of the independent claims 1 and 48-50, as currently amended, are generally directed to a method for predicting a level of consumption of healthcare resources in which a utilization

score is computed for a plurality of members in a health plan having a plurality of disease and/or drug categories or a plurality of health conditions; and a burden of illness score is calculated that is the weighted sum of selected disease and/or drug categories; wherein the utilization score for the member based on the burden of illness score and at least one explanatory variable derived from either demographic or past healthcare utilization of the member. Lash does not teach or suggest a model having any of these features.

First, Lash does not teach or suggest computing a utilization score for each of a plurality of health plan members having a plurality of disease or drug categories (amended claims 48 and 49) or a plurality of health conditions (amended claims 1 and 50). Rather, Lash discloses a system and method for predicting the likelihood that a patient having a single disease or condition will acquire high medical service utilization characteristics. A probability equation is applied to patient claim data to calculate a probability value indicative of the likelihood that a patient will have a high utilization of healthcare resources within a given period of time. *See Lash, Abstract.*

Lash discloses two methods, a method for developing a probability equation using healthcare claim data for a homogeneous grouping of patients, i.e., patients all having a single diagnosis or disease, and a method for using the probability equation to calculate a probability value for each patient in a similarly homogeneous group of patients. *Lash, para. [0046].* The probability equations produced by the Lash method are "based on a particular disease diagnosis." *Lash, para. [0047].* In practice, prior to performing any analysis on the member patients in a managed care organization, the method of Lash first filters the patient members into a "homogenous sub-population" by disease or diagnosed condition, such as asthma patients or diabetic patients. *Lash, para.[0037] ("if the population is not otherwise homogeneous, it is filtered, for example on the basis of the disease or diagnosed condition of the patient to filter the population into more homogeneous sub-populations . . .");* see also, *Lash paras.[0046] and [0048] ("the program applies the probability equation to patient records indicating the particular disease for which the model was created"), Fig. 3, element 65, Fig. 3A, element 65A, and Fig. 3B, element 65B.* Only <u>after</u> patient members are filtered based on disease or condition does Lash provide scores to the subset of the members of the health plan in an effort to identify future high users of medical services <u>from the homogenized set of patients</u>. *See Lash, para.*

*[0039] ("all of the patients in a particular sub-population have their records scored in step 67,
i.e., they are given a score based on the individual values for their predictive variables. The
higher the score, the more likely they are to be high-use patients"); see also, Lash para. [0038]
("Once a <u>homogeneous</u> population or sub-population of patients is identified, then the
regression analysis program operates . . . to predict whether the patient will be a high user of
medical service . . .").*

In fact, Lash explicitly teaches away from applying its behavioral model to any group of
patients that is not <u>homogenous</u> because, according to Lash, suitable variables and coefficients
are determined based on the factor that makes a group of patients <u>homogenous</u> (e.g., the specific
disease or diagnosed condition inflicting the homogenous population). *Lash, para. [0037] ("It is
very difficult to create accurate models with diverse populations of patients because they have
very different motivations that control their behavior . . . Therefore, if the population is not
otherwise homogenous, it is filtered, for example on the basis of the disease or diagnosed
condition . . .").* For example, Lash provides an example for asthmatic patients reciting:

> To create a <u>reliable</u> predictive model for high-use <u>asthmatic</u>
> patients, several restrictive criteria are preferably used . . . Patients
> <u>must</u> also <u>be classified as "asthmatic" in the index year</u>. *Lash,
> para. [0064]*.

Therefore, because the method of Lash first filters the patient members into a
"<u>homogenous sub-population</u>" by disease or diagnosed condition <u>prior</u> to performing any
analysis on the member patients in a managed care organization, Lash fails to teach or suggest
computing a utilization score for health plan members member having a plurality of disease or
drug categories or a plurality of health conditions. In fact, Lash expressly teaches away from a
utilization score applicable to a plurality of non-homogeneous patients.

Second, Lash does not teach or suggest calculation of a burden of illness score that is the
weighted sum of selected disease or drug categories identified within the member's claim
records or data. In response to the Examiner's statement that the claims do not define the burden
of illness score (which is incorrect as to claim 50), claims 1, 48 and 49 have been amended to
clarify what is meant by the burden of illness score. Specifically, the burden of illness score is
calculated by identifying a number of selected disease or drug categories present in the plurality

of provider claims for the member and calculating a weighted sum of the identified number of selected disease or drug categories. See, e.g., specification beginning at page 17, line 12. There is no such calculation in Lash because, as discussed in detail above, Lash is not concerned with multiple disease or drug categories, but only with a homogeneous data set relating to one disease or condition. Thus, the calculation of a burden of illness score as recited in amended claims 1 and 48-50 is not taught or suggested by Lash.

Third, Lash does not teach or suggest computing a utilization score using both the burden of illness score and at least one explanatory variable that is either demographic data or prior healthcare utilization data for each health plan member. As discussed above, Lash does not teach, suggest, or enable one to calculate a utilization score for each member in a non-homogeneous group of health plan members, i.e., having a plurality of health conditions, disease categories or drug categories. Nor does Lash teach the calculation of the burden of illness score that is required prior to calculating the utilization score for each member.

For at least the foregoing reasons, amended claims 1 and 28-50 are believed to be patentable over Lash.

In addition to the reasons set forth above, amended claim 50 is further believed to be patentable over Lash because amended claim 50 recites "determining the presence of a plurality of medical episodes in the claims data and grouping the claim data into one or more groups based on a medical episode" prior to calculating the burden of illness score or computing the utilization score. This recited functionality is not taught or suggested by Lash. Therefore, amended claim 50 is believed to be patentable over Lash for this additional reason.

Claims 2-5, 16-24, 27-32, 36-47, 51-56, and 62-67 depend from amended claims 1 and 50 respectively and are believed to be patentable over Lash for at least the reasons set forth above with respect to amended claims 1 and 50.

Claims 6-15, 25-26, 57-61, and 68 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lash as applied to claims 1 and 50 and further in view of Wong et al. (U.S. 5,976,082).

However, Wong fails to remedy the fundamental deficiencies of Lash discussed above with reference to amended claims 1 and 50. Wong discloses a method for identifying at risk patients diagnosed with congestive heart failure. *Wong, Abstract*. Like Lash, Wong is practiced exclusively in the context of a <u>single disease</u>, *i.e.*, congestive heart failure. Therefore, Wong does not teach calculation of a utilization score for non-homogeneous population of members in a health plan including the calculation of the burden of illness score as recited in amended claims 1 and 50. Therefore, claims 6-15, 25-26, 57-61, and 68 are believed to be patentable over the allied combination of references.

Claims 33 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lash as applied to claim 1 and further in view of Lockwood (U.S. 5,706,441). Applicants respectfully traverse the rejection for at least the following reasons.

However, Lockwood fails to remedy the fundamental deficiencies of Lash as discussed above with reference to amended claim 1. Lockwood discloses a method and apparatus for assessing performance of health-care providers. *Lockwood, Abstract*. Lockwood does not relate to a method for predicting a level of consumption of healthcare resources for a plurality of members of a non-homogeneous population of members in a health plan, and does not teach or suggest the claimed calculation of a burden of illness score or a utilization score for each member of a non-homogeneous group of health plan members. Therefore, claims 33 and 34 are believed to be patentable over the applied combination of references.
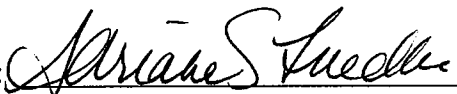
Conclusion

This application now stands in allowable form and reconsideration and allowance are respectfully requested.

This response is being submitted on or before May 12, 2007 making this a timely response. It is believe that no additional fees are due in connection with this filing. However, the Commissioner is authorized to charge any additional fees, including extension fees or other relief which may be required, or credit any overpayment, to Deposit Account No. 04-1420.

Respectfully submitted,

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Date: __May 14, 2007__

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